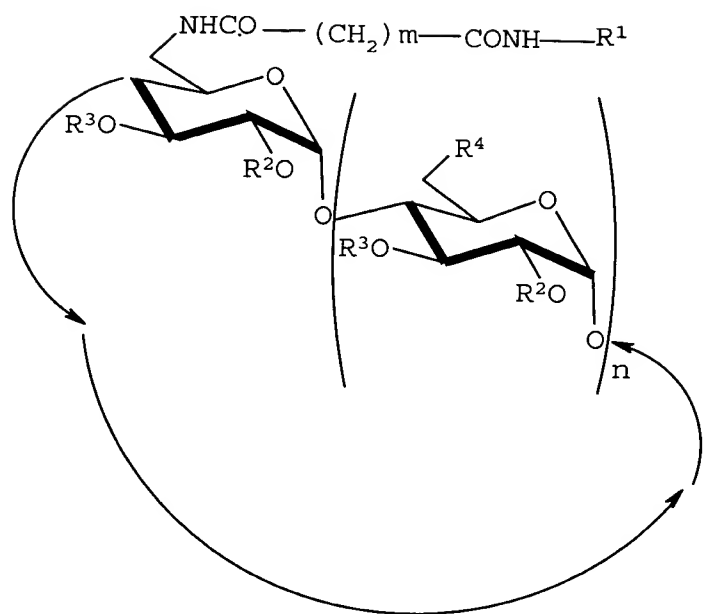


a<sup>1</sup>  
cont

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(I)

wherein:

- $R^1$  represents a group derived from a steroid,
- $R^2$  represents an alkyl or aryl group, substituted if applicable,
- $R^3$  represents H or  $R^2$ ,
- all the  $R^4$  represent  $OR^2$ , or
- one of the  $R^4$  represents  $-NHCO(CH_2)_mCONHR^1$ , and the other  $R^4$  represent  $OR^2$

provided that there is at least one glucose unit where  $R^4$  represents  $OR^2$  between the two glucose units comprising the substituent  $-NHCO-(CH_2)_m-CONH-R^1$ ,

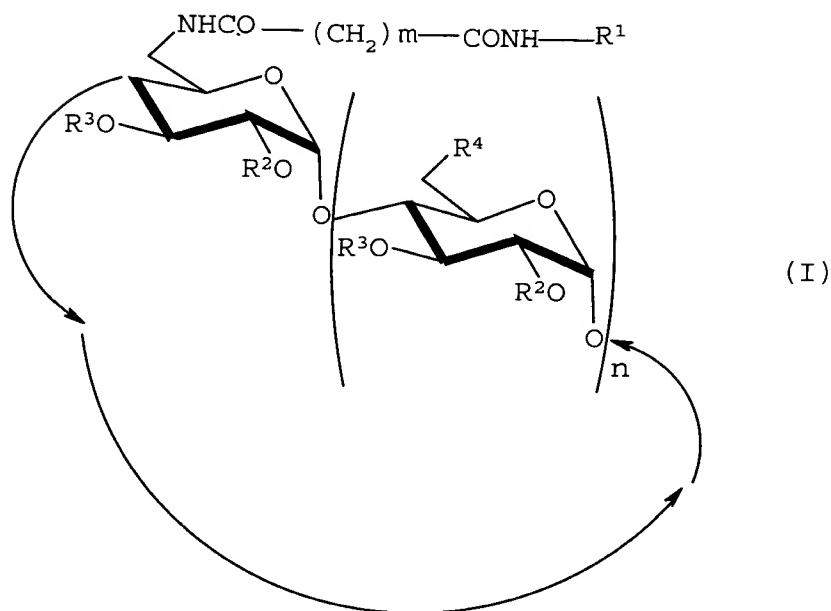
- $m$  is an integer ranging from 1 to 8, and
- $n$  is equal to 5, 6 or 7.

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- 3

28. (New) Method to prepare a cyclodextrin derivative according to the formula:



wherein:

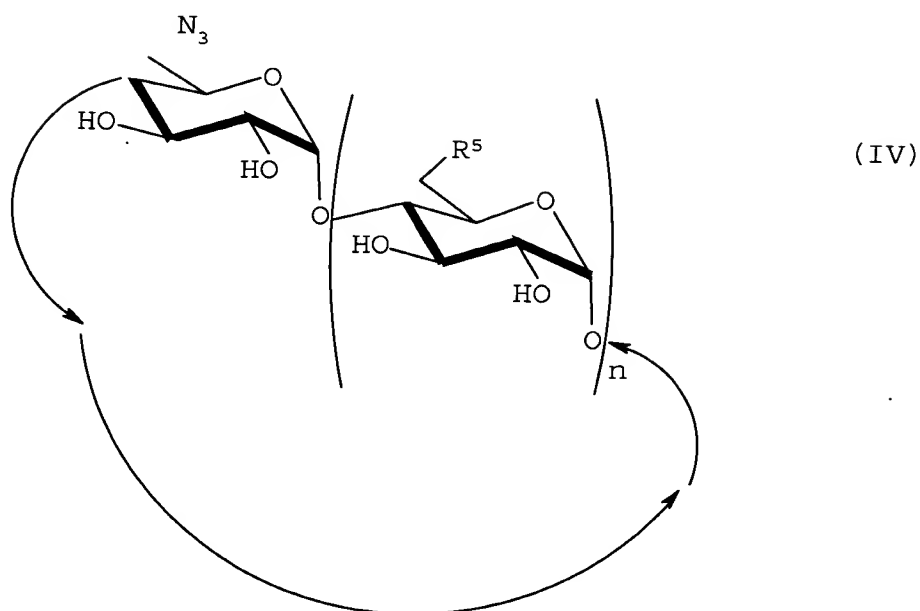
- $\text{R}^1$  represents a group derived from a steroid,
- $\text{R}^2$  represents an alkyl or aryl group, substituted if applicable,
- $\text{R}^3$  represents H,
- all the  $\text{R}^4$  represent  $\text{OR}^2$ , or
- one of the  $\text{R}^4$  represents  $-\text{NHCO}(\text{CH}_2)_m\text{CONHR}^1$ , and the other  $\text{R}^4$  represent  $\text{OR}^2$

provided that there is at least one glucose unit where  $\text{R}^4$  represents  $\text{OR}^2$  between the two glucose units comprising the substituent  $-\text{NHCO}-(\text{CH}_2)_m-\text{CONH}-\text{R}^1$ ,

- $m$  is an integer ranging from 1 to 8, and
- $n$  is equal to 5, 6 or 7,

which comprises the following steps:

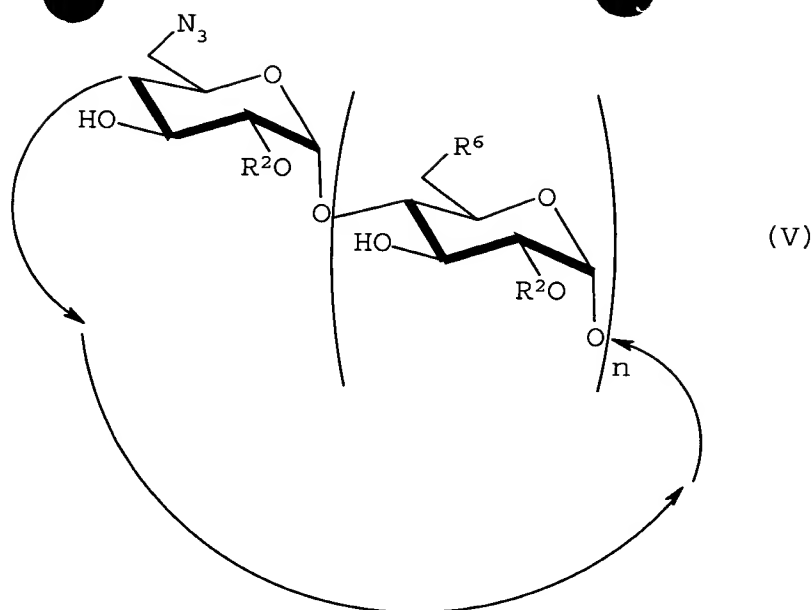
a) react a derivative according to the formula:



wherein all the  $R^5$  represent OH, or one of the  $R^5$  represents  $-N_3$  and the other  $R^5$  represent OH, provided that there is at least one glucose unit where  $R^5$  represents OH between the two glucose units comprising the  $N_3$  substituent, and  $n$  is equal to 5, 6 or 7,

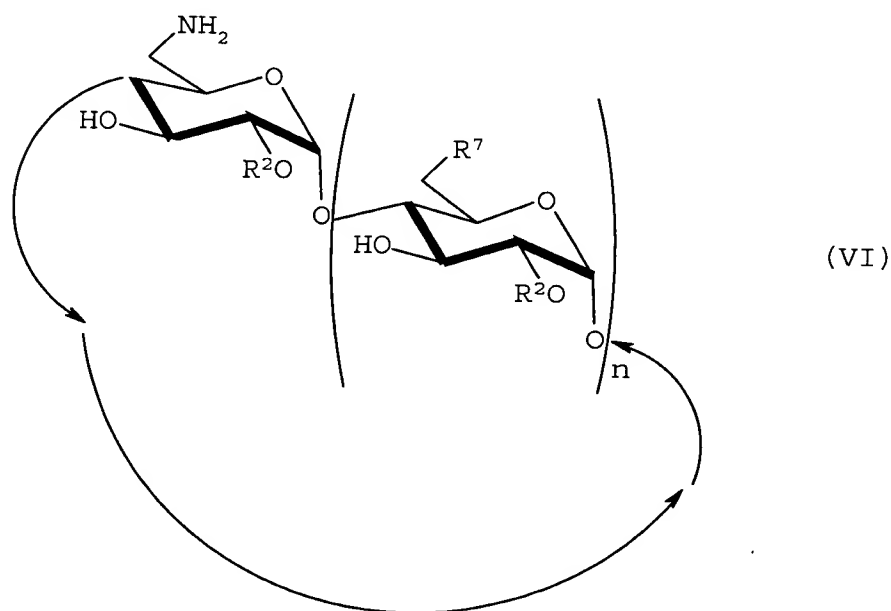
with a dialkyl sulfate  $SO_4R^2_2$  where  $R^2$  has the significance given above, in a basic medium to obtain the cyclodextrin derivative according to the formula:

1  
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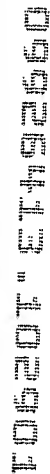
wherein all the  $R^6$  represent  $OR^2$ , or one of the  $R^6$  represents  $N_3$  and the other  $R^6$  represent  $OR^2$ , and  $R^2$  and  $n$  are as defined above,

b) perform a Staudinger reaction on the derivative according to formula (V) using triphenylphosphine and ammonia to convert  $N_3$  into  $NH_2$  and obtain the derivative according to the formula:



wherein all the  $R^7$  represent  $OR^2$ , or one of the  $R^7$  represents  $NH_2$  and the other  $R^7$  represent  $OR^2$ , and  $R^2$  and  $n$  are as defined above,

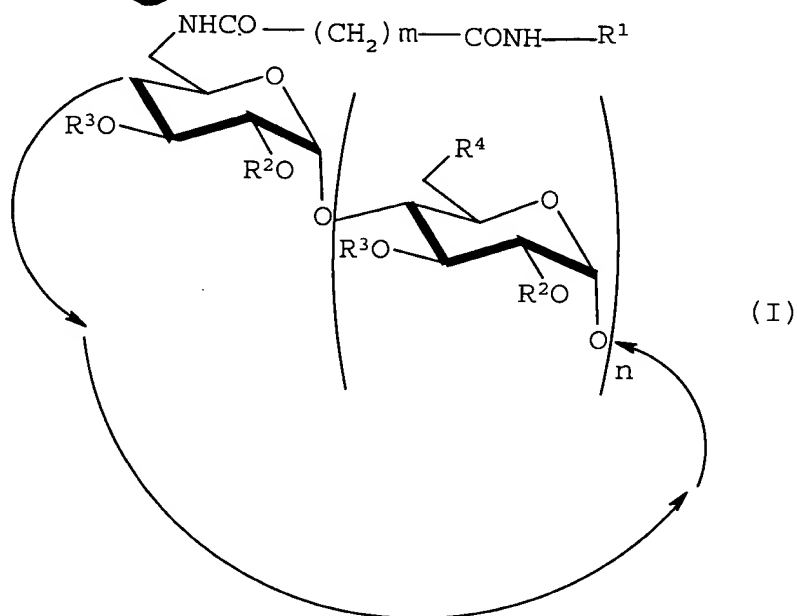
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(VIII)

d) react the derivative according to formula (VIII) with a compound according to the formula  $\text{NH}_2\text{-R}^1$  to obtain the cyclodextrin derivative according to formula (I) defined above.

7



wherein:

- $\text{R}^1$  represents a group derived from a steroid,
- $\text{R}^2$  represents an alkyl or aryl group, substituted if applicable,
- $\text{R}^3$  represents  $\text{R}^2$ ,
- all the  $\text{R}^4$  represent  $\text{OR}^2$ , or
- one of the  $\text{R}^4$  represents  $-\text{NHCO}(\text{CH}_2)_m\text{CONHR}^1$ , and the other  $\text{R}^4$  represent  $\text{OR}^2$

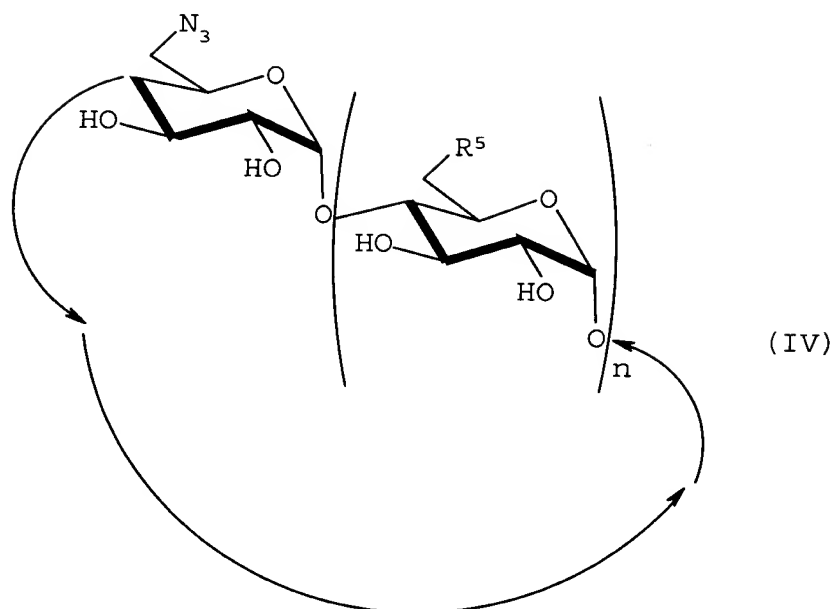
provided that there is at least one glucose unit where  $\text{R}^4$  represents  $\text{OR}^2$  between the two glucose units comprising the substituent  $-\text{NHCO}-(\text{CH}_2)_m-\text{CONH}-\text{R}^1$ ,

- $m$  is an integer ranging from 1 to 8, and
- $n$  is equal to 5, 6 or 7,

which comprises the following steps:

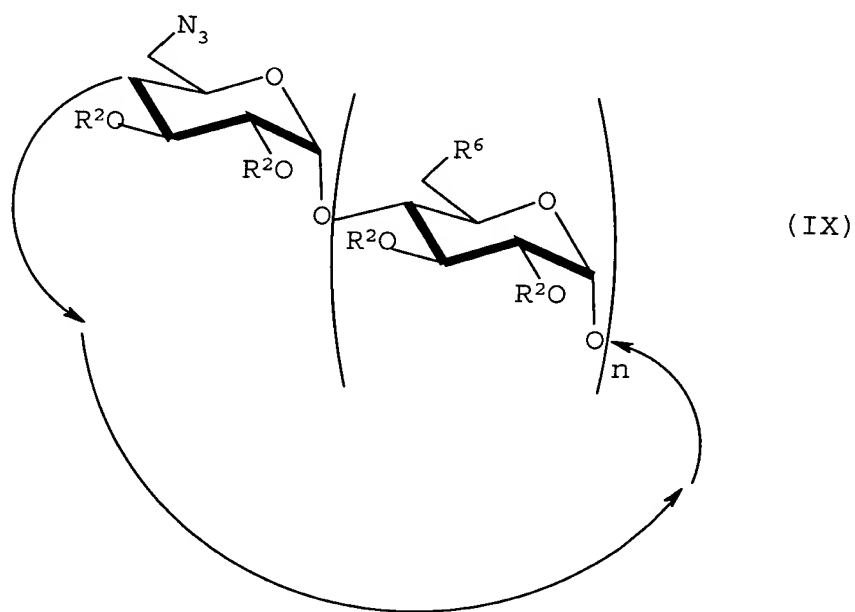
a) react a derivative according to the formula:

a.  
cont



wherein all the  $R^5$  represent OH, or one of the  $R^5$  represents  $-N_3$  and the other  $R^5$  represent OH, provided that there is at least one glucose unit where  $R^5$  represents OH between the two glucose units comprising the  $N_3$  substituent, and  $n$  is equal to 5, 6 or 7,

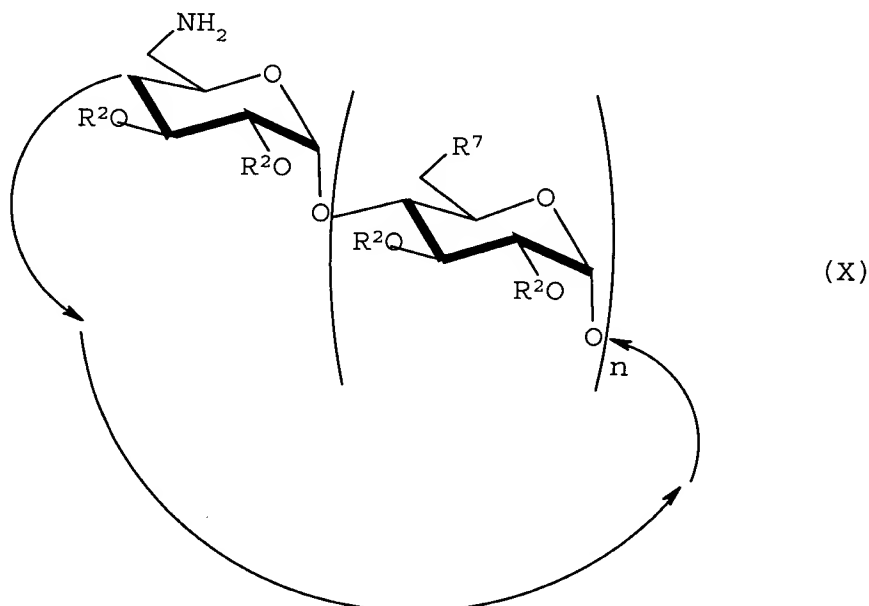
with an iodoalkane according to the formula  $IR^2$  wherein  $R^2$  has the significance given above, in the presence of NaH to obtain the cyclodextrin derivative according to the formula:





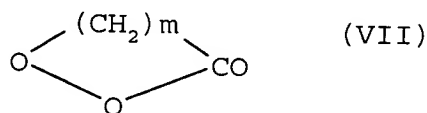
wherein all the  $R^6$  represent  $OR^2$ , or one of the  $R^6$  represents  $N_3$  and the other  $R^6$  represent  $OR^2$ , and  $R^2$  and  $n$  are as defined above,

b) perform a Staudinger reaction on the derivative according to formula (IX) using triphenylphosphine and ammonia to convert  $N_3$  into  $NH_2$  and obtain the derivative according to the formula:



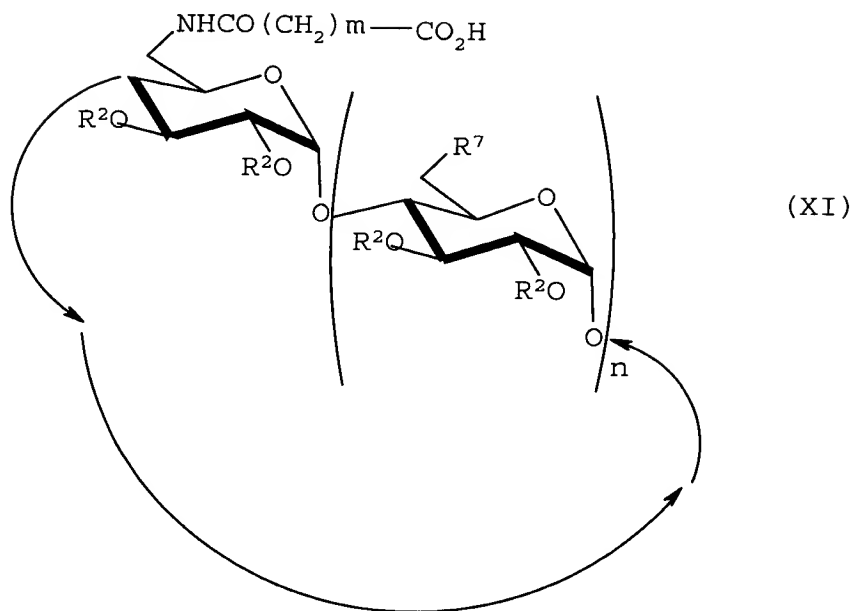
wherein all the  $R^7$  represent  $OR^2$ , or one of the  $R^7$  represents  $NH_2$  and the other  $R^7$  represent  $OR^2$ , and  $R^2$  and  $n$  are as defined above,

c) react the derivative according to formula (X) with an acid anhydride according to the formula:



where  $m$  is as defined above, to obtain the derivative according to the formula:

at  
cont

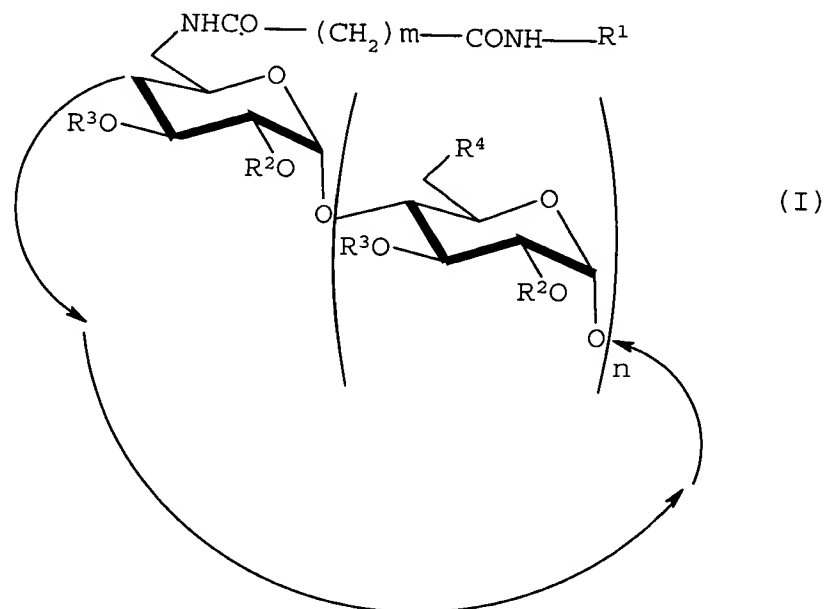


wherein all the  $R^7$  represent  $OR^2$ , or one of the  $R^7$  represents  $-NHCO-(CH_2)_m-COOH$  and the other  $R^7$  represent  $OR^2$ , and  $R^2$ ,  $m$  and  $n$  are as defined above, and

d) react the derivative according to formula (XI) with a compound according to the formula  $NH_2-R^1$  to obtain the cyclodextrin derivative according to formula (I) defined above.

30. (New) Inclusion complex of a cyclodextrin derivative according to the following formula:

wherein:



- $R^1$  represents a group derived from a steroid,
- $R^2$  represents an alkyl or aryl group, substituted if applicable,
- $R^3$  represents H or  $R^2$ ,
- all the  $R^4$  represent  $OR^2$ , or
- one of the  $R^4$  represents  $-NHCO(CH_2)_mCONHR^1$ , and the other  $R^4$  represent  $OR^2$

provided that there is at least one glucose unit where  $R^4$  represents  $OR^2$  between the two glucose units comprising the substituent  $-NHCO-(CH_2)_m-CONH-R^1$ ,

-  $m$  is an integer ranging from 1 to 8, and

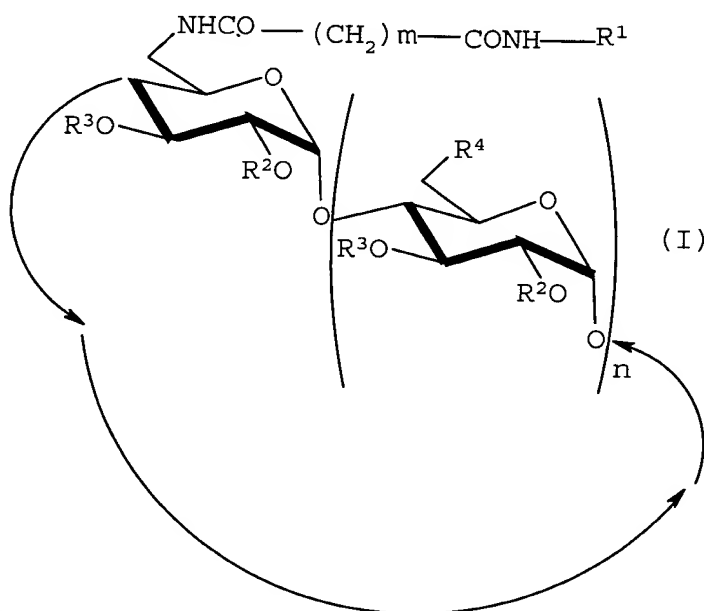
-  $n$  is equal to 5, 6 or 7,

and a hydrophobic compound.

31. (New) Complex according to claim 30, wherein the hydrophobic compound is chosen from steroids, neurotropes, bacteriostatics, vitamins, vascular wall tonics and contrast agents.

32. (New) Complex according to claim 30, wherein the hydrophobic compound is chosen from 16-iodo-3-methylhexadecanoic acid, dothiepin, chloramphenicol, vitamin A and esculin.

33. (New) Aqueous solution of nanoparticles of a cyclodextrin derivative complying with the formula:

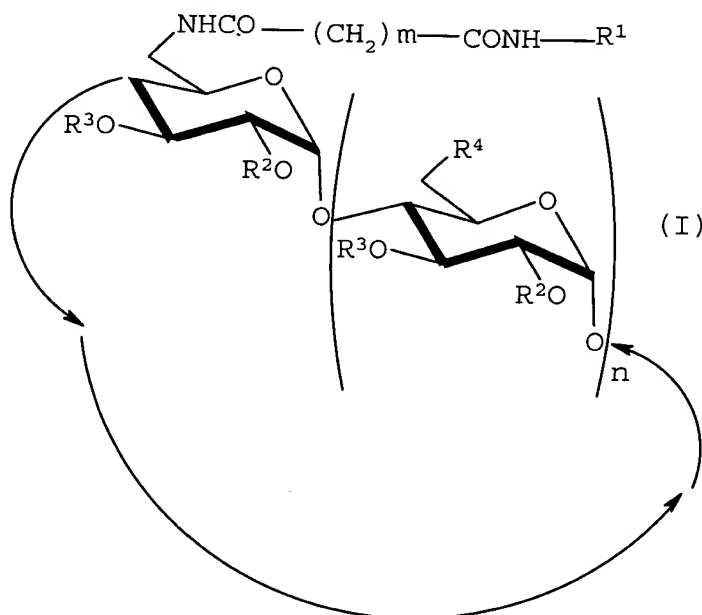


wherein:

- $\text{R}^1$  represents a group derived from a steroid,
  - $\text{R}^2$  represents an alkyl or aryl group, substituted if applicable,
  - $\text{R}^3$  represents H or  $\text{R}^2$ ,
  - all the  $\text{R}^4$  represent  $\text{OR}^2$ , or
  - one of the  $\text{R}^4$  represents  $-\text{NHCO}(\text{CH}_2)_m\text{CONHR}^1$ , and the other  $\text{R}^4$  represent  $\text{OR}^2$
- provided that there is at least one glucose unit where  $\text{R}^4$  represents  $\text{OR}^2$  between the two glucose units comprising the substituent  $-\text{NHCO}-(\text{CH}_2)_m-\text{CONH}-\text{R}^1$ ,
- $m$  is an integer ranging from 1 to 8, and
  - $n$  is equal to 5, 6 or 7,

or an inclusion complex according to claim 30.

34. (New) Organized surfactant system comprising a cyclodextrin derivative complying with the formula:



wherein:

- $\text{R}^1$  represents a group derived from a steroid,
- $\text{R}^2$  represents an alkyl or aryl group, substituted if applicable,
- $\text{R}^3$  represents H or  $\text{R}^2$ ,
- all the  $\text{R}^4$  represent  $\text{OR}^2$ , or
- one of the  $\text{R}^4$  represents  $-\text{NHCO}(\text{CH}_2)_m\text{CONHR}^1$ , and the other  $\text{R}^4$  represent  $\text{OR}^2$

provided that there is at least one glucose unit where  $\text{R}^4$  represents  $\text{OR}^2$  between the two glucose units comprising the substituent  $-\text{NHCO}-(\text{CH}_2)_m-\text{CONH}-\text{R}^1$ ,

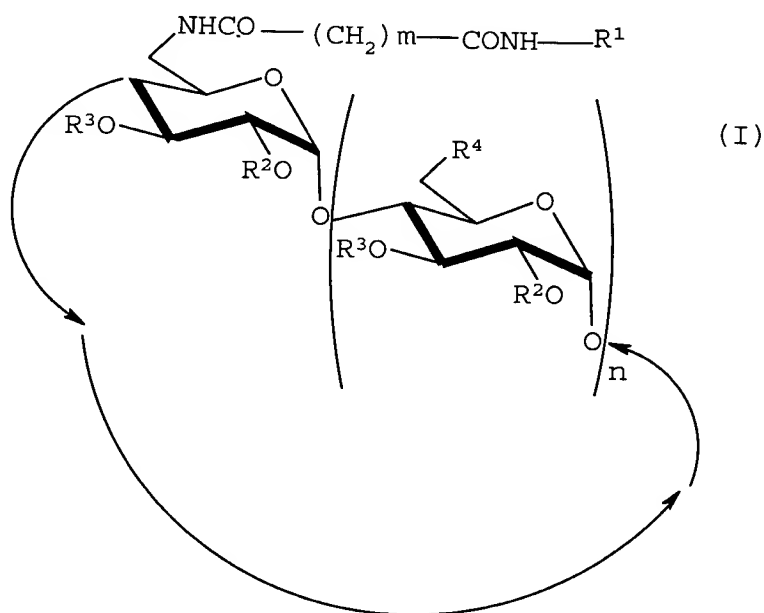
-  $m$  is an integer ranging from 1 to 8, and

-  $n$  is equal to 5, 6 or 7,

or an inclusion complex according to claim 30.

35. (New) System according to claim 34 wherein the surfactant is a phospholipid.

36. (New) Aqueous solution comprising in solution a combined system formed from phospholipid or membrane protein vesicles, and at least one cyclodextrin derivative complying with the formula:



wherein:

- $R^1$  represents a group derived from a steroid,
- $R^2$  represents an alkyl or aryl group, substituted if applicable,
- $R^3$  represents H or  $R^2$ ,
- all the  $R^4$  represent  $OR^2$ , or
- one of the  $R^4$  represents  $-NHCO(CH_2)_mCONHR^1$ , and the other  $R^4$  represent  $OR^2$

provided that there is at least one glucose unit where  $R^4$  represents  $OR^2$  between the two glucose units comprising the substituent  $-NHCO-(CH_2)_m-CONH-R^1$ ,

-  $m$  is an integer ranging from 1 to 8, and

-  $n$  is equal to 5, 6 or 7,

or at least one inclusion complex according to claim 30.